

Title (en)  
Vertical junction field effect transistors, and methods of producing the same

Title (de)  
Vertikal-Sperrschicht-Feldeffekttransistor und Herstellungsverfahren dafür

Title (fr)  
Transistors à effet de champ à jonction verticale et leurs procédés de fabrication

Publication  
**EP 2378560 A2 20111019 (EN)**

Application  
**EP 11173822 A 20030724**

Priority  
• EP 03765376 A 20030724  
• JP 2002215804 A 20020724  
• JP 2002235045 A 20020812

Abstract (en)  
A vertical junction field effect transistor comprising: a drain semiconductor portion; a drift semiconductor portion placed on the drain semiconductor portion and having first, second, and third regions; a buried semiconductor portion placed on the first, second, and third regions of the drift semiconductor portion; a channel semiconductor portion placed along the buried semiconductor portion on the first and second regions, and electrically connected to the third region of the drift semiconductor portion; a source semiconductor portion placed on the channel semiconductor portion and the first region of the drift semiconductor portion; a second gate semiconductor portion placed above the second region or above the second and third regions of the drift semiconductor portion; a second gate electrode placed above the second region or above the second and third regions of the drift semiconductor portion, electrically connected to the second gate semiconductor portion, and electrically isolated under the source electrode; a source electrode electrically connected to the source semiconductor portion above the first region of the drift semiconductor portion, electrically isolated from the second gate electrode above the second gate electrode, and placed above the first, second, and third regions of the drift semiconductor portion; and connection semiconductor portions, penetrating the channel semiconductor portion so as to electrically connect the second gate semiconductor portion and the buried semiconductor portion, and scattered above the second region of the drift semiconductor portion.

IPC 8 full level  
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**EP 1542270 A1 20050615**; **EP 1542270 A4 20090722**; CN 100349270 C 20071114; CN 1666325 A 20050907; EP 2367205 A2 20110921; EP 2367205 A3 20120328; EP 2378546 A2 20111019; EP 2378546 A3 20130306; EP 2378560 A2 20111019; EP 2378560 A3 20120418; JP 2004063507 A 20040226; JP 4122880 B2 20080723; KR 100678251 B1 20070202; KR 20050021471 A 20050307; TW 200403850 A 20040301; TW I288480 B 20071011; US 2005230715 A1 20051020; US 2007278540 A1 20071206; US 7282760 B2 20071016; US 7750377 B2 20100706; WO 2004010489 A1 20040129

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